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32914 7590 02/25/2010

GARDERE WYNNE SEWELL LLP  
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1601 ELM ST  
DALLAS, TX 75201-4761

EXAMINER

MAIS, MARK A

ART UNIT

PAPER NUMBER

2467

DATE MAILED: 02/25/2010

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,466	02/16/2004	Matt Morris	350886-1023	5553

TITLE OF INVENTION: ROUTING OF DATA STREAMS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	05/25/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

## HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to:** Mail **Mail Stop ISSUE FEE**  
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**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

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nonprovisional	NO	\$1510	\$300	\$0	\$1810	05/25/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
MAIS, MARK A	2467	370-389000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.  
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 \_\_\_\_\_  
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 \_\_\_\_\_  
 3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee  
☐ Publication Fee (No small entity discount permitted)  
☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.  
☐ Payment by credit card. Form PTO-2038 is attached.  
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_ Date \_\_\_\_\_  
 Typed or printed name \_\_\_\_\_ Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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10/779,466	02/16/2004	Matt Morris	350886-1023	5553
32914	7590	02/25/2010	EXAMINER	
GARDERE WYNNE SEWELL LLP INTELLECTUAL PROPERTY SECTION 3000 THANKSGIVING TOWER 1601 ELM ST DALLAS, TX 75201-4761			MAIS, MARK A	
			ART UNIT	PAPER NUMBER
			2467	
DATE MAILED: 02/25/2010				

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 910 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 910 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

**Notice of Allowability****Application No.**

10/779,466

**Examiner**

MARK A. MAIS

**Applicant(s)**

MORRIS, MATT

**Art Unit**

2467

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment dated 2 December 2009.
2. ☒ The allowed claim(s) is/are 1-3,5,7-12,14,15 and 32-40 [renumbered 1-21].
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date \_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_.

/MARK A. MAIS/  
Examiner, Art Unit 2467

/Pankaj Kumar/  
Supervisory Patent Examiner, Art Unit 2467

**EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with Andre M Szuwalski (Reg. # 35,701) on January 30, 2010.
3. Please amend claims 1, 5, 8, 14, 15, 36, 37, and 40 as follows:

Claim 1. (Currently Amended) A stream routing unit ~~configured~~ to route each of a plurality of input packet streams to any of a plurality of destinations, the stream routing unit comprising:

- a plurality of input ports ~~configured~~ to receive for receiving respective input streams;
- a plurality of output ports associated with respective destinations to which the input packet streams can be routed;
- a store ~~configured~~ to hold packets of the input packet streams at addressable locations each identifiable by an address, said store being shared by all of said input ports and said output ports;

an assignment data structure ~~configured~~ to identify for each source of the input packet stream at least one destination to which each input packet stream is to be routed;

a packet allocation table comprising an array including a plurality of slots ~~configured~~ to hold for each new incoming packet a source identifier that identifies the source of the incoming packet and the address in the store where the incoming packet is held, the packet allocation table further including a plurality of destination pointers, each destination pointer associated with one of the output ports, each destination pointer being assignable to any slot so as to identify the output ports associated with the intended destinations of a held packet, the assigning of each destination pointer to a slot being derived using the assignment data structure; and

a processor ~~configured~~ to control the removal of packets from the store and the sending of the removed packets out through the plurality of output ports using the assigned destination pointers, wherein an order of packet removal from the store for sending out through the output ports depends on whether the output ports through which the removed packets are to be sent based on the assigned destination pointers are free to send out packets.

Claim 5. (Currently Amended) The stream routing unit according to claim 1, wherein the packet allocation table is associated with a write pointer which ~~is configured to point~~ points to the next available slot in the array for the source identifier and address of the next incoming packet.

Claim 8. (Currently Amended) A data communication system ~~configured~~ to route incoming packets to at least one destination, the system comprising:

- a plurality of packet stream sources each generating a packet stream;

- a stream routing unit comprising:

  - a plurality of input ports ~~configured~~ to receive respective input packet streams;

  - a plurality of output ports associated with respective destinations to which the input packet streams can be routed;

  - a store ~~configured~~ to hold packets of the input packet streams at addressable locations each identifiable by an address, said store being shared by all of said input ports and output ports;

  - an assignment data structure ~~configured~~ to identify for each source of the input packet stream at least one destination to which each input packet stream is to be routed;

  - a packet allocation table ~~configured~~ an array including a plurality of slots ~~configured~~ to hold for each incoming packet a source identifier ~~configured~~ to identify the source of the incoming packet and the address in the store where the incoming packet is held, the packet allocation table further including a plurality of destination pointers, each destination pointer associated with one of the output ports, each destination pointer being assignable to any slot so as to identify the output ports associated with the intended destinations of a held packet, the assigning of each destination pointer to a slot being derived using the assignment data structure;

and

  - a processor ~~configured~~ to control the removal of packets from the store and the sending of the removed packets out through the plurality of output ports using the assigned destination pointers, wherein an order of packet removal from the store for sending out through the output

ports depends on whether the output ports through which the removed packets are to be sent based on the assigned destination pointers are free to send out packets; and

a plurality of destinations for receiving packets of the packet streams generated by the sources.

Claim 14. (Currently Amended) The method according to claim 11 further comprising:  
associating each slot with a write pointer which is ~~configured to point~~ points to the next available slot in the array for storing the input port identifier and address of the received packet.

Claim 15. (Currently Amended) A device for delivering incoming packets to at least one destination, the device comprising:

a plurality of input ports, each input port having an input port identifier;

a plurality of output ports;

an addressable memory ~~configured~~ to store incoming packets at a plurality of address locations in the memory;

a matrix ~~configured~~ to map at least one input port identifier to at least one output port;

a packet allocation table including a plurality of slots, each slot ~~configured~~ to associate an input port identifier for the input port at which a particular packet is received with the address location in the addressable memory where the particular packet is stored;

a plurality of destination pointers associated with the packet allocation table, each destination pointer having an associated output port, and each destination pointer being assignable to any slot in the packet allocation table; and



an algorithm ~~configured~~ to control removal of the incoming packets from the memory to at least one output port, the algorithm assigning each destination pointer to a slot in the packet allocation table based on the output port associated with the destination pointer and the input port identifier within the slot of the packet allocation table and mapped to the output port by the matrix, wherein the packet at the address location within the slot of the packet allocation table assigned to the destination pointer is retrieved from the addressable memory and delivered to the output port associated with that destination pointer.

Claim 36. (Currently Amended) A stream routing unit, comprising:

- a plurality of input ports, each input port ~~configured~~ to receive an input packet stream;
- a plurality of output ports, each output port ~~configured~~ to output outputting an output packet stream;
- a memory including a plurality of addressable memory locations;
- a matrix ~~configured~~ to map each input port receiving the input packet streams to one or more output ports for receiving the packets within those input packet streams;
- an insertion circuit ~~configured~~ to insert into a header of each packet of the received input packet stream an input port identifier for the input port which received the input packet stream;
- a processor ~~configured~~ to store packets of the input packet streams in the memory and ~~configured~~ to retrieve stored packets from the memory to form the output packet streams;
- the processor ~~configured~~ to fill a packet allocation table which includes a plurality of slot locations, each slot location storing the input port identifier from the packet header which identifies the input port that received the input packet stream to which a given packet belongs

linked in the slot of the packet allocation table to an address in the memory for the addressable memory location where that given packet has been stored by the processor;

a destination pointer, associated with each one of the output ports, implemented by the processor ~~and configured~~ to point to a slot location in the packet allocation table from which the address of the given packet is retrieved, the destination pointer pointing to the slot location when the input port identifier in the slot matches the input port identifier mapped through the matrix to an output port associated with that destination pointer;

the processor further ~~configured~~ to retrieve the given packet from the memory at the address provided in the slot location pointed at by the destination pointer, and send the retrieved given packet to each output port associated with that destination pointer for inclusion in the output packet stream of the output port.

Claim 37. (Currently Amended) The stream routing unit of claim 36 further comprising a write pointer implemented by the processor ~~and configured~~ to point to an open slot location in the packet allocation table to which the source identifier and address of the given packet are written.

Claim 40. (Currently Amended) A stream routing unit, comprising:

a plurality of input ports, each input port ~~configured~~ to receive an input packet stream;

a plurality of output ports, each output port ~~configured~~ to output an output packet stream;

an insertion circuit coupled to the input ports and adapted to receive the input packet streams and insert into a header of each packet in the received input packet stream an input port identifier of the input port which received that input packet stream;

a matrix ~~configured~~ to map an assignment of which output ports of the stream routing unit are to output the packet streams received at each input port;

a memory including a plurality of addressable memory locations, the memory adapted to store packets from the received input packet streams at the addressable memory locations;

a packet allocation table including a plurality of slot locations, each slot location storing a) the input port identifier from the packet header which identifies the input port that received the input packet stream to which a given packet belongs and b) an address in the memory for the addressable memory location where that given packet has been stored;

a destination pointer, associated with each one of the output ports, each destination pointer being assigned to point to one of the plurality of slot location when the input port identifier in the slot matches the input port identifier mapped through the matrix to an output port associated with that destination pointer;

a processor ~~configured~~ to retrieve the given packet from the memory at the address provided in the slot location pointed at by each destination pointer, and send the retrieved given packet to the output port associated with that destination pointer for inclusion in the output packet stream at the output port.

### *Conclusion*

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARK A. MAIS whose telephone number is (571)272-3138. The examiner can normally be reached on 5am-4pm.

5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pankaj Kumar can be reached on 571-272-3011. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

February 1, 2010  
/MARK A. MAIS/  
Examiner, Art Unit 2467  
/Pankaj Kumar/  
Supervisory Patent Examiner, Art Unit 2467